

CHARGE NUMBER: 1901  
PROGRAM TITLE: BIOCHEMICAL MODIFICATION OF TOBACCO  
PERIOD COVERED: April 1 - April 30, 1973  
PROJECT LEADER: D. M. Teng  
DATE OF REPORT: May 8, 1973

## I. BIOCHEMICAL MODIFICATION OF TOBACCO

### A. Artificial Curing

Artificial flue-curing of greenhouse-grown bright tobacco was repeated under the same conditions as stated last month. The current results of enzyme activity agreed with those of the first experiment. These experiments will be repeated this summer with field-grown leaves to ascertain the differences, if any, in the curing properties of field or greenhouse-grown tobacco leaves.

### B. Aging Study

Leaves from 1971 and 1972 crops and stems from 1972 are being used for this study. Samples are selected bi-monthly and assayed for the activities of  $\alpha$ -amylase,  $\beta$ -amylase, catalase, invertase, polyphenol oxidase and protease. The test results showed that stems do not have any activity of the enzymes tested. After 18 months of aging, the leaves had more than 50% of the initial  $\alpha$ -amylase activity and 75% of the  $\beta$ -amylase activity. Microbiological changes and chemical analyses are being studied. The sources of these enzymes will be determined by the isolation, cultivation and enzyme assays of the tobacco micro-organisms. If the enzyme activities come from microbial, rather than plant, origin, the species which produce the enzymes will be used for the study of tobacco fermentation in the future.

## II. BEETLE EXTERMINATION PROGRAM<sup>2</sup>

Experimental series 1-7 have been completed and reported on. With the acquisition of a new technician, the laboratory will provide two thousand of each life stage of beetles per week instead of the one thousand that had been supplied to Dr. Laszlo's group.

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Page 2.

### III. SBS MOLD STUDIES

Mold studies performed for Mr. K. Burns are in their 87th day. Materials which have been treated with 0.1 and 0.2% potassium sorbate show no evidence of mold growth. Untreated controls showed mold growth after five days. A completion report will be issued during the month of May.

### IV. GUAR GUM STUDY

The study of safe storage (time and conditions) of non-sterile guar gum slurry and sheet has been completed. After 45 days of storage at 0°C for slurry and ambient in a closed jar for the sheets, neither the slurry nor the sheets shows evidence of microbial or fungal contamination.

### V. REFERENCES

1.	D. Teng	6273
2.	R. Lehman	6255
3.	B. Semp	5072

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